Practice Problems: *Solve each of the following linear equations. Reduce any non-integer answers to fractions in simplest form.*

(1) $7x + 5 = 2x - 35$

(4) $\frac{5(x-3)}{2} - 1 = 14$

Solve the following linear inequalities. Write solutions in interval notation:

(6) $4x + 3 \geq 2x - 9$

Answer the following problem:

(9) When finding the intersection of two lines algebraically, you first set the two equations equal to each other. Find the intersection point of the lines $y = 5x + 1$ and $y = 2x + 4$ *(First set the equations equal and solve the corresponding equation to find the x-coordinate of the intersection, then plug your answer back in to either of the original equations to find the corresponding y-coordinate.)*

$5x+1 = 2x+4$

$-2x \quad -2x$

$3x+1 = 4$

$-1 = -1$

$\frac{3x}{3} = \frac{3}{3}$

$x = 1$

To find y:

$y = 5x+1$

$y = 5(1)+1$

$y = 6$

(1, 6) Intersection point

PEMDAS

*Evaluate the following expressions **without the use of a graphing calculator** using the using the correct order of operations: (SHOW ALL WORK for credit to be given.)*

1) $8 + 16 \div 4 - 5 - 3$

$8 + 4 - 5 - 3$

$12 - 5 - 3$

$7 - 3 = 4$

8) Which of the following is a complete list of zeros for the polynomial $2x^3 + 6x^2 + 4x$? (*You must show all work for credit to be given.*)

(where it crosses x-axis) zeros roots solutions

(a) 0, 1, and 2 (b) –2, –1, and 0 (c) –1 and 2 (d) 1 and 2

Factor GCF → $\frac{2x^3}{2x} + \frac{6x^2}{2x} + \frac{4x}{2x} = 0$ * MUST = 0 to SOLVE

AM → $2x(x^2 + 3x + 2) = 0$

$2x(x+1)(x+2) = 0$

$\frac{2x}{2} = \frac{0}{2}$ $x = 0$

$x + 1 = 0$, $-1 \quad -1$, $x = -1$

$x = -2$ *

Simplify the following expressions involving radicals completely:

look for largest perfect square factor

9) $\sqrt{32}$

$\sqrt{16}\ \sqrt{2}$

$4\sqrt{2}$

10) $5\sqrt{125}$

$\sqrt{25}\ \sqrt{5}$

$5 \cdot 5\sqrt{5}$

$25\sqrt{5}$

13) When solving the equation $6x^2 - 2x - 3 = 0$, Jim uses the quadratic formula and gets $\frac{2 \pm \sqrt{76}}{12}$ as his solutions. What would his answers look like in simplest radical form?

Look at outside #s

$\sqrt{76}$

$\sqrt{4}\ \sqrt{19}$

$2\sqrt{19}$

$\frac{2 \pm \sqrt{76}}{12} = \frac{2 \pm 2\sqrt{19}}{12} = \frac{1 \pm \sqrt{19}}{6}$

Part IV: Graphing Points in the *x*-*y* Coordinate Plane

14) Assume $a > 0$. State which quadrant each of the following coordinates would lie in:

$(-a,-a)$ III $(-a,a)$ II $(a,-a)$ IV (a,a) I

II | I

III | IV

$2 + 1 = 3$ Add

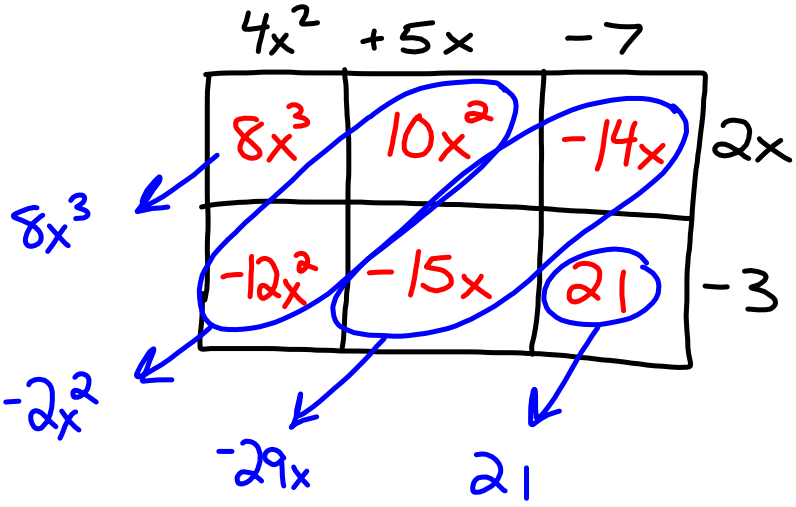
$2 \times 1 = 2$ Multiply

$$\frac{2 \pm 3\sqrt{19}}{12}$$

$$\frac{2}{12} \pm \frac{3\sqrt{19}}{12}$$

7. $(2x-3)(4x^2+5x-7)$

Box Method



$8x^3-2x^2-29x+21$

10. $(x^2+8x+3)(2x^2-x+1)$